## Abstract Submitted for the DNP11 Meeting of The American Physical Society

A Liquid parahydrogen target for the NPDGamma experiment <sup>1</sup> ZHAOWEN TANG, Indiana University, NPDGAMMA COLLABORATION — The goal of NPDGamma experiment is to measure the parity-odd directional gamma-ray asymmetry from the polarized neutron-proton capture reaction. This reaction is sensitive to the  $\Delta I = 1$  part of the hadronic weak interaction between nucleons, where contributions from quark-quark neutral currents are expected to dominate. Our goal is to measure  $A_{\gamma}$  to a sensitivity of  $10^{-8}$  at the newly commissioned fundamental neutron physics beamline (FnPB) at the Spallation Neutron Source at Oak Ridge National Lab. The target has to meet strict requirements set by this sensitive measurement. It is operated in the para-hydrogen state at 17K to avoid depolarization of cold neutrons. The design of the target has to meet SNS hydrogen safety requirements and minimize background from neutron capture in aluminum. The previous version of the target was successfully operated at LANSCE, where a parahydrogen fraction of 99.98% was measured [1]. We will describe the target along with its installation and testing.

[1] S. Santra et al, Nucl. Instrum. Methods, A 620, 421-436 (2010)

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Date submitted: 01 Jul 2011 Electronic form version 1.4